

ATOMIC ENERGY *newsletter*[®]

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

November 12th, 1957

Vol. 18...No. 7

Dear Sir:

Keel for the first U. S. nuclear powered Naval surface vessel is to be laid December 2nd. The ship will be the guided missile cruiser USS Long Beach; hull construction contract is held by Bethlehem Steel Co. Construction will be by the company's shipbuilding division in Quincy, Mass. Bids for the U.S.'s first nuclear powered merchant ship, the 21,000-ton NS Savannah, are to be opened soon. Selection of the shipyard where the combination cargo-passenger ship for which Congress appropriated \$39 million will be built is a matter of days, according to Maritime Administrator C. G. Morse..... This country's third nuclear submarine, the Skate, has returned to her berth at the yard of Electric Boat division of General Dynamics Corp., Groton, Conn., after completing successful sea trials six months ahead of schedule. Meanwhile the Nautilus, first U. S. nuclear undersea craft, has returned from an historic trip under the Arctic ice-cap in which she went within miles of the North Pole. (Both Skate and Nautilus are powered by pressurized water reactors produced by Westinghouse Electric Corp.) (Other BUSINESS NEWS, p. 5 this LETTER.)

With work nine months ahead of schedule at the new £6 million nuclear graphite plant near Newcastle, England, it is expected by the sponsoring companies that production may begin next Spring. The factory is being developed by the Anglo-Great Lakes Corp., which comprises the U.S. firm of Great Lakes Carbon Corp., and the U.K. companies, C.A. Parsons & Co.; A. Reyrolle & Co.; Clarke Chapman & Co.; and Sir Robert McAlpine & Sons. (Other PRODUCT NEWS, p. 2 this LETTER.)

Sodium reactor experiment is being dedicated this Thursday (Nov. 14th) at its site at Santa Susana, Calif., where it was built for the USAEC by Atomics International division of North American Aviation, Inc. Built under the experimental nuclear power program, the 6,500 electrical KW facility will feed into the grid of the Southern California Edison Co. (Reactor is pilot plant of the 75,000 electrical nuclear power station Atomics International will build for Consumers Public Power District of Nebraska.) (Other REACTOR NEWS, p. 4 this LETTER.)

Information on the effects of nuclear radiation on materials and systems (used in connection with nuclear aircraft) will be gathered and disseminated by a newly-established Radiation Effects Information Center at Battelle Memorial Institute, Columbus, Ohio. The Center, set up by the U. S. Air Force, will handle the data exchange for the Air Force, its contractors, and other government agencies. Under its contract with the Air Force, Battelle has initially assigned some twenty men to the Center. (Other CONTRACT NEWS, p. 2 this LETTER.)

Sales and profits gain over 1956 is expected by Mallinckrodt Chemical Works for the fourth quarter of 1957, according to Joseph Fistere, president. Mr. Fistere noted that while the company's general line of industrial chemicals, reagents, etc. showed improvement, Mallinckrodt's special metals department also contributed to the improved sales and earnings picture. Progress is being made, he noted, by a plant for the production of nuclear fuel material. The first such privately owned plant in the U.S., production began about a year ago. (Other FINANCIAL NEWS, p. 5.)

CONTRACT NEWS...in the nuclear field...

CONTRACTS AWARDED:- Contract has been awarded Cuno Engineering Corp., Meriden, Conn., to furnish filtering system to clean out the reactor system of the prototype reactor of the USS Triton, to be largest U. S. nuclear powered submarine. Particles present in the reactor system after construction are removed by the Cuno filters. Contracts were awarded Cuno by Knolls Atomic Power Laboratory (General Electric-operated), and Westinghouse Electric-Corp., Bettis atomic power division. Both companies were acting for the USAEC and the U. S. Navy. Similar filters were furnished by Cuno for the nuclear submarines Swordfish and Skate.

Three subcontracts recently awarded by Babcock & Wilcox as prime USAEC contractor on the liquid metal fuel reactor experiment covered separate fields of responsibility. Union Carbide Nuclear Co. will provide B&W consultation in the field of chemical processing of the uranium-bismuth liquid used to fuel the experimental reactor. Walter Kidde Nuclear Laboratories, Inc., will provide engineering and design services for remote maintenance and handling equipment. Arthur D. Little, Inc., will conduct feasibility study of the application to the experiment of a continuous uranium concentration measuring system.

Contract awarded Tracerlab, Inc., by the USAF's Air Materiel Command is for classified research and development work for AMC. In the amount of \$1,285,000 the research and other services will be performed at Tracerlab's Waltham, Mass., facilities.

CONTRACT CANCELLATIONS:- Cancellation of Air Force contract, actually made four months ago, but just now disclosed, covers development of turbo-prop engine by Pratt & Whitney division of United Aircraft Corp. The engine, the J-91, would have been used on a nuclear propelled aircraft. Decision to cancel this engine phase had been prompted by Air Force's desire for further work on reducing reactor size.

Contracts of USAEC with National Lead Co. for operation of uranium processing plant at Grand Junction, Colo., and a raw materials research laboratory at Winchester, Mass., are being cancelled by the Commission June 30, 1958. Explaining the Grand Junction termination, Jesse C. Johnson, director of the USAEC's division of raw materials, said there was duplication at Grand Junction of much of the work being done by the Bureau of Mines at its ore-forecasting plant at Salt Lake City. (It is believed that when the contracts are terminated National Lead will operate the Grand Junction and Winchester units on a private basis.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS FROM MANUFACTURERS:- Model GS is new Van de Graaff particle accelerator designed for in-line processing use. A 1.5 million-electron-volt machine, it is said to be capable of producing ionizing radiation for less than \$20,000 per kw. Rating is 2.5 kw for industrial operations; peak power of 4-5 kw can be provided, the company states. --High Voltage Engineering Corp., Burlington, Mass.

Portable pipewall thickness gauge uses radiation absorption principle for nondestructive pipewall thickness measurements. Bearing trade-name AccuRay, the gauge measures pipewall thickness directly on pipes from 2 to 8-in. diameter.

--Industrial Nucleonics Corp., Columbus, Ohio.

Radioisotopes newly available from this processor include iron-55 & 59; cobalt-60; nickel-63; ruthenium-rhodium-106; zinc-65; chromium-51; and thallium-204. --Atomic Research Laboratory, 10717 Venice Blvd., Los Angeles 34, Calif.

MANUFACTURERS' SALES:- Now installed in the plant of Electric Steel Foundry Co., Portland, Ore., is a 24-MEV betatron for non-destructive testing of castings produced by the company. Produced and sold by Allis-Chalmers Mfg. Co., it was said to be the first such unit with ceiling-mounted, telescoping tube suspension which rotates vertically and horizontally.

MANUFACTURERS' NEWS:- At last fortnight's Atom Fair in New York some 150 exhibitors showed products related to various phases of nuclear work. Items ranged from smallest components to complete nuclear reactor systems. Instrument manufacturers, with instrumentation for laboratory and plant; radioisotope processors; radioactive waste disposal services; electron accelerator producers; and the many related suppliers of materials and services for the nuclear industry were some who had displays.

MANUFACTURERS' LITERATURE:- Six new bulletins on components for liquid metal systems are offered by the atomic power equipment department, General Electric Co. Designed for use in the nuclear and other fields, these are pumping, purification, and indicating components for liquid sodium and sodium potassium systems.

ATOMIC ENERGY PATENT DIGEST...latest grants...

ISSUED October 29, 1957 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Radiographic devices. Le Roy J. Leishman, S. Yerkovich, Los Angeles, Calif., inventors. No. 2,811,648 issued to inventors of record. (2) Neutron logging of well bores. E. R. Atkins, Jr., P. G. Nahin, inventors. No. 2,811,649 assigned to Union Oil Co. of Calif., Los Angeles. (3) Radiological wear measurement method. C. D. Wagner, inventor. No. 2,811,650 assigned to Shell Development Co., Emeryville, Calif.

ISSUED October 29, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Method of processing monazite sand. G. D. Calkins, inventor. No. 2,811,411 assigned to USAEC. (2) Method of recovering uranium compounds. R. H. Poirier, inventor. No. 2,811,412 assigned to USAEC. (3) Fluorination process. T. S. McMillan, inventor. No. 2,811,413 assigned to USAEC. (4) Process for producing uranium halides. E. V. Murphree, inventor. No. 2,811,414 assigned to USAEC. (5) Extraction method for separating uranium, plutonium, and fission products from compositions containing same. G. T. Seaborg, inventor. No. 2,811,415 assigned to USAEC. (6) Process of removing plutonium values from an aqueous solution. E. R. Russell, A. W. Adamson, J. Schubert, G. E. Boyd, inventors. No. 2,811,416 assigned to USAEC. (7) Redis-tributor for liquid-liquid extraction columns. No. 2,811,423. J. G. Bradley, in-ventor, assigned to USAEC. (8) Nuclear reactor with xenon-135 shield. H. E. Stanton, inventor. No. 2,811,487 assigned to USAEC.

ISSUED November 5, 1957 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Gamma ray wall thickness measuring device. A. M. Hartman, Le Roy A. White, inventors. No. 2,812,440 assigned to Standard Oil Co., Chicago, Ill. (2) X-ray Cassette warpproof Bakelite front. C. B. Kamiss, Jamaica, N.Y. No. 2,812,441 to inventor of record.

ISSUED November 5, 1957 to GOVERNMENT ORGANIZATIONS:- (1) Direct current electromagnetic pump. A. H. Barnes, inventor. No. 2,811,923 assigned to USAEC. (2) Prevention of scale formation in uranium solvent extractor. J. W. Delaplaine, inven-tor. No. 2,812,232 assigned to USAEC. (3) Metal extraction process. G. W. Lewis, Jr., D. E. Rhodes, inventors. No. 2,812,233 assigned to USAEC. (4) Nuclear power plant. Farrington Daniels, inventor. No. 2,812,303 assigned to USAEC. (5) Means for cooling reactors. J. A. Wheeler, inventor. No. 2,812,304 assigned to USAEC.

EDUCATIONAL NEWS...nuclear projects...

Under plans of the University of Toronto, subcritical reactor is to be con-structed for use by the University's Department of Physics, at its Wallberg Memorial Building. Necessary permit has been issued by the Atomic Energy Control Board, at Ottawa.

Ground breaking ceremonies last week at Cambridge, Mass., marked initial con-struction work on the Cambridge accelerator site, near the Harvard cyclotron labor-atory. The \$6.5 million project, which will have a 6 MEV accelerator and associated apparatus, will be operated jointly by Harvard and MIT people, but the USAEC contract for building and operating the machine will be administered by Harvard.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- Grants by the Defense Materials Exploration Administration for uranium ore exploration (at the old 75% government participation rate; new one is 50%) have been made to: Southeastern Mining & Exploration Co., Juneau, Alaska; D & J Uranium Exploration Co., Saugache County, Colo.; Yellow Queen Uranium Co., Jefferson County, Colo; Mid-Continent Uranium Corp., and New Jersey Zinc Co., McKinley County, N. Mex.; Four Corners Uranium Corp., Emory County, Utah; and other mining concerns. Grants by DMEA for thorium exploration went to Cotter Corp., Custer County, Calif.; and Cunac Minerals Co., Fremont County, Colo.

CANADA:- Stanleigh Uranium Mines expects that first ore will be fed to the concentrator by the end of this month, with crushing and grinding sections scheduled for test shortly, at the company's Blind River property in northern Ontario. This will mean that operations are starting in less than 12 months from financing, the company's annual report observes. Stanleigh holds contract from Eldorado Mining & Refining, Ltd., covering the purchase of \$90,506,250 worth of uranium concentrates.

AUSTRALIA:- Processing plant to treat uranium ores is to be erected by United Uranium NL at a site on the South Alligator river area of this country's northern territory. Solvent extraction will be used in the plant to produce the concentrates. Plant capacity is planned at 50,000-tons per year, using conservative ratings.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Regional Economic Development & Nuclear Power in India, by Norman L. Gold.

Study of accomplishment and goals in industrialization of India. 132 pages. --

National Planning Association, 1606 New Hampshire Ave., N.W., Wash. 9, D. C. (\$2.75)

Handbook of Radiochemical Analysis. Work done by Tracerlab, Inc., under USAEC contract. In two volumes; Vol. 1, Radiochemical Techniques (No. PB-121690) (\$4.00); Vol. 2, Radiochemical Procedures (No. PB-121689) (\$3.25). --Office of Technical Services, Wash. 25, D.C.

Atmospheric Radioactivity Along the 80th Meridian; study by Naval Research Laboratory. No. PB-131081. (50¢)..... Design of High Intensity Gamma Irradiation Facility; work at Wright Air Development Center, Dayton, O. No. PB-131160. (\$1.50)..... Report to Management on Radiation Preservation of Food; investigations by U.S. Office of Quartermaster General. No. PB-131171. (50¢)..... Above from - Office of Technical Services, Wash., D. C.

NOTES:- List of publications (No. 23) compiled by the library, Atomic Energy Research Establishment, Harwell, England, is now available on request.

MEETINGS, COURSES, CONFERENCES...on nuclear topics.

MEETINGS:- Last fortnight's nuclear meetings in New York included second Winter meeting of the American Nuclear Society; reactor safety conference sponsored by American Nuclear Society, Atomic Industrial Forum, and USAEC; and fourth annual conference of the AIF. (All were in conjunction with the Atom Fair trade show; p. 2 this LETTER.) In 24 sessions, some 200 technical papers were presented by ANS, while AIF had some 110 papers presented at its sessions.

To balance its uranium program, the USAEC will limit production to currently projected requirements, while still encouraging exploration for new ore reserves, Jesse C. Johnson, director of the USAEC's division of raw materials told an AIF session. To expand the uranium production rate, and then curtail it is undesirable, he stated. Present and planned mills will have combined production rate of 15,000 tons per year of uranium concentrates by early 1959, which means that domestic ore reserves of 70 million tons will provide only a 10-year supply, he pointed out.

Rising costs are bringing current estimates above initial cost estimates on several nuclear power plants, the AIF was told. Consolidated Edison Co.'s nuclear power station is now estimated at \$90 million, up from the original estimate of \$55 million in 1955, according to Gordon Milne of Con Ed. Rise in estimated costs is due partly to escalation clauses in contracts as well as necessary design changes; the Con Ed plant will have 275,000 electrical kw capacity. For Yankee Electric Co.'s 134,000 electrical kw plant at Rowe, Mass., total cost of plant may reach \$57 million, as against the initial estimate of \$35 million. Higher figure was given by A. E. Voysey, of Westinghouse Electric Corp., which is building the nuclear portion of the plant; Mr. Voysey's figures included land, initial fuel, interest, contingencies, and escalation. For Power Reactor Development Co., a group of companies headed by Detroit Edison, new revised estimates show increase of 10% in cost of PRDC plant, which will be between Toledo and Detroit.

While fixed-cost contracts give the purchaser a more firm cost basis, the builder assumes large risks, as the experience of General Electric Co. on the Dresden nuclear power station it is building near Chicago for a group of utilities headed by Commonwealth Edison Co. would indicate. Although the contract price is \$45 million, officials report that GE will itself foot the bill for \$20 million to \$45 million over the contract price which the project is costing. Research and development budget will carry these excess costs for GE.

The U. S. faces at least another 10-years of hard work on the technical front before economic atomic power can be achieved, Charles H. Weaver, vice-president, Westinghouse Electric Corp., told the AIF. This tough development job should be viewed realistically with neither undue optimism or pessimism, he said. Mr. Weaver affirmed his enthusiasm, after his nine years of nuclear work; this persists, he noted, despite complaints he now hears regarding high costs and big losses on nuclear projects. As to companies getting out of the nuclear business, he wondered whether they knew initially what they were getting into when they started out.

CONFERENCE:- A fast reactor conference is scheduled for Nov. 20-21, in Chicago, by the USAEC, with first days sessions in the city, and second at the Lemont, Ill., site of Argonne National Laboratory. E. W. Rylander, of Argonne, is handling arrangements for papers at the technical meeting.

ATOMIC ENERGY BUSINESS NEWS...

ATOMIC CENTER PLANS SHELVED:- Plans of Sylvania-Corning Nuclear Corp. for an atomic center on a 150-acre site at Andover, Mass., have been abandoned. Economic conditions which the entire nuclear industry in the U. S. is facing was behind decision to give up the proposed center, according to Lee L. Davenport, president of the company. Dr. Davenport noted that the nuclear industry in the U.S. can sell to three markets: Government projects (where cut-backs have reduced spending); commercial atomic enterprises (where development has lagged); and overseas markets (being exploited by firms of other countries). The Andover facility, mainly for making fuel components for reactors, would have been further expansion of Sylvania-Corning's recently enlarged plant at Hicksville, L.I., where such fuel components are produced. The action represents deferring of expansion plans, with the company meanwhile continuing its full production and sales efforts in the fuel component field.

TESTS COMPLETED OF REACTOR BEING SOLD ABROAD:-Successful tests of nuclear reactor sold to the Spanish government have been completed by General Electric Co. people at the firm's Vallecitos atomic laboratory, Pleasanton, Calif. Manufactured by GE's atomic power equipment department in San Jose, Calif., the 3,000 thermal kw open pool type reactor will be assembled next year in Spain at a site in the Moncloa area near Madrid; it is expected to sustain its first chain reaction in March. (GE's developmental boiling-water reactor went into operation last fortnight, and is feeding 5,000 electrical kw into Pacific Gas & Electric system. Facility is jointly owned by GE and PG&E. Samuel Untermeyer, general manager of reactor operations at Vallecitos, observed that expected power stability troubles didn't materialize.)

PROPOSAL TO FURNISH REACTOR IS WITHDRAWN:- Offer has been withdrawn by AMF Atomics and Mitchell Engineering Nuclear (divisions of American Machine & Foundry) to build 15 mw experimental nuclear reactor for Rheinisch Westfalisches Elektrizitätswerk of Essen, Germany. Number of factors were involved in decision, one being cost increases throwing out of line original quotation of \$7.5 million. Another was refusal of the USAEC to permit urania-thoria core to be used abroad before use in the U.S., with necessity of substituting stainless steel-clad uranium oxide fuel elements. It is understood that the German power company has under consideration a 200 mw Calder Hall-type station.

LICENSES & PERMITS ISSUED:- Permit has been formally issued Yankee Atomic Electric Co. for construction of nuclear power facility near Rowe, Mass. Estimated to cost \$57 million, the station will use pressurized water reactor to produce 134,000 kw. of electricity..... Application has been made to USAEC by Walker Trucking Co., New Britain, Conn., for waste disposal license; radioactive material would be disposed of in the Atlantic..... Permit for construction of industrial research reactor has been issued Daystrom Inc., for West Caldwell, N.J. site.

PROCESSING OF SPENT FUELS FROM PRIVATELY OPERATED REACTORS TO BE DONE BY USAEC:- Radiochemical facilities of the USAEC are to process spent fuels from private power and research reactors, under recent decision of the Commission. Work will be done until private industry is ready to undertake the job. Commission decision followed a survey it made which showed that the U. S. chemical industry, because of the unknown volume of work and the technical uncertainties connected with the composition of fuel elements that will be used in reactors, and the additional waste storage and disposal problems, was unwilling to make the substantial investment in new processing facilities that would be required. USAEC intends to ask Congress for additional funds to modify its facilities in order to accommodate private processing.

MERGER PLANNED BY METALS FIRMS:- Climax Molybdenum Co., and American Metals Co., both with interests in uranium, have announced plans for merger; proposal will now be submitted to stockholders. Operated as a subsidiary of Climax Molybdenum is Climax Uranium Co., engaged in large scale uranium mining and processing in the U.S. (Recent report of Climax Molybdenum showed third quarter sales and profits behind 1956, but first nine months of 1957 ahead of a year ago. The company noted the depressed conditions of the tungsten market occasioned by the Government's failure to make appropriations for the purchase program it has adopted.)

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

C